This Listing Statement is compiled by the Exchange from documents filed by the Company in making application for listing. It is issued for the information of members, member firms and member corporations of the Exchange. It is not and is not to be construed as a prospectus. The Exchange has received no consideration in connection with the issue of this Listing Statement other than the customary listing fee. The documents referred to above are open for inspection at the general office of the Exchange.

LISTING STATEMENT No. 2179

LISTED NOVEMBER 13th, 1964
6,500,000 shares of $1.00 par value
Ticker abbreviation "MDM"
Dial ticker number 2061
Post section 3.5

Fee JS

THE TORONTO STOCK EXCHANGE

LISTING STATEMENT

McADAM MINING CORPORATION LIMITED

Incorporated by Letters Patent April 2, 1959 pursuant to Corporations Act, 1953 (Ontario); Supplementary Letters Patent issued February 21, 1961.

1. Address of the company's Head Office and of any other offices:

   Head Office - Suite 502, 19 Richmond Street West, Toronto 1, Ontario.

2. Officers of the company:

OFFICE HELD	NAME	ADDRESS	OCCUPATION
President	Levi Francis Gauvreau	R.R.#3, Port Hope, Ontario	Mining Engineer
Vice-President	John McAdam, Jr.	Chibougamau, Quebec	Mining Geologist
Secretary-Treasurer	John Terrence Flanagan	Chibougamau, Quebec	Mining Geologist

3. Directors of the Company:

NAME	ADDRESS	OCCUPATION
Levi Francis Gauvreau	R.R.#3, Port Hope, Ontario	Mining Engineer
John McAdam, Jr.	Chibougamau, Quebec	Mining Geologist
John Terrence Flanagan	Chibougamau, Quebec	Mining Geologist
Eli John Gauvreau	420 Westview Drive, Sudbury, Ontario	Mining Geologist
Frederick Charles Knight	78 Baby Point Crescent, Toronto, Ontario	Mining Engineer
Philip Sidney Cross	82 Kilbarry Road, Toronto, Ontario	Mining Engineer
James Murdock DaCosta	259 Inglewood Drive, Toronto 7, Ontario	Barrister & Solicitor

4. Names and addresses of all transfer agents:

   Crown Trust Company, 302 Bay Street, Toronto 1, Ontario.

5. Particulars of any fee charged upon transfer other than customary government taxes:

   Fifty Cent fee charged in connection with each transfer of certificate other than original issued from treasury.

6. Names and addresses of all registrars:

Crown Trust Company, 302 Bay Street, Toronto 1, Ontario.

7. Amount of authorized capital: $6,500,000.00

8. Number of shares and par value: 6,500,000 shares par value $1.00 each.

9. Full details of all shares issued in payment for properties or for any other assets other than cash:

(i) By agreement dated April 2, 1959, between the Company and The Prudential Mining Company of Canada, 1,200,000 shares were issued for 25 claims, Frotet Lake area, Quebec (subsequently lapsed before present management elected to Company); Company acquired 18 claims for staking cost only ($360.00) from holders of said 1,200,000 shares purchased from original vendors. By Agreement dated February 28, 1961, 200,000 of these shares deposited in escrow for benefit of the Company by Messrs. Levi Francis Gauvreau, Eli John Gauvreau, John Terrence Flanagan and John McAdam, Jr. and released to said parties in consideration of transfer of 15 claims adjoining original 18-claim group above noted. These 33 claims represent part of main group of 36 claims owned by the Company in McCorkill Township, Quebec. (see item 27)

Date	Number of Shares	Brief description of the properties or other assets and the aggregate consideration therefor, expressed in cash, shares, etc.
(ii) January 23, 1963	100,000 (valued at $ .10 per share)	Petroleum and Natural Gas Lease No. 73601, Alberta being 321 acres in the North one-half of Section 19, Ist Twp, 27th range west of the 4th meridian, Alta.

10. Full details of all shares sold for cash.

Date	Number of Shares	Price per Share	Amount realized by Company
April 1959	7	$1.00	$ 7.00
1961	250,000	.10	25,050.00
April 1961	100,000	.12½	12,500.00
April 1961	100,000	.15	15,000.00
June 1961	100,000	.17½	17,500.00
June 1961	100,000	.20	20,000.00
June 1961	100,000	.25	25,000.00
June 1961	100,000	.30	30,000.00
Feb. 1962	100,000	.40	40,000.00
Sept. 1962	20,000	.20	4,000.00
Oct. 1962	5,000	.30	1,500.00
Jan. 1963	300,000	.15	45,000.00
1963	400,000	.25	100,000.00
Jan. 1964	50,000	.25	12,500.00
Jan. 1964	225,000	.30	67,500.00
Feb. 1964	200,000	.30	60,000.00
Apr. 1964	175,000	.30	52,500.00
May 1964	200,000	.40	80,000.00
June 1964	50,000	.45	22,500.00
Aug. 1964	200,000	.50	100,000.00
Oct. 1964	200,000	.60	120,000.00
	2,975,507		$850,557.00

11. Total number of shares issued:	4,275, 507
12. Number of shares now in treasury or otherwise unissued.	2,224,493
13. Particulars of any issued shares held in trust for the Company or donated for treasury purposes.	Nil
14. Date of last annual meeting.	November 4, 1963.
15. Date of last report to shareholders.	October 11, 1963.

16. Details of any treasury shares (or shares issued subject to payment or shares held for the benefit of the treasury) now under option or the subject of any underwriting or sales agreement. If none, this to be stated.	By Agreement dated August 5, 1964 between the Company and Dobieco Limited, 25 Adelaide Street West, Toronto, as Underwriter, the latter has purchased 200,000 shares at $ .60 per share payable on acceptance by Ontario Securities Commission, Quebec Securities Commission and Canadian Stock Exchange (October 2, 1964). The underwritten shares have been issued and paid for as of this date and options are outstanding on 200,000 shares at $ .60 exercisable on or before January 2, 1965, and three blocks of 100,000 shares each at $ .70, $ .80 and $1.10 exercisable on or before April 2, 1965, July 2, 1965 and October 2, 1965 respectively. An option is held by Dr. Wilfred Cowan, 14239 Chandler Park Drive, Detroit, Michigan to purchase 50,000 shares at $ .30 per share on or before January 23, 1965 being part of the consideration for the transfer of petroleum and natural gas lease noted in Item 27 hereof.
17. Names and addresses of persons having any interest, direct or indirect, in underwritten or optioned shares or other securities or assignments, present or proposed.	The Company is advised that Dobieco Limited is acting on its own account with respect to all the shares underwritten and optioned referred to in Item 16. The only persons having a greater than 5% interest in Dobieco Limited are Harry Wallace Knight, 561 Avenue Road; Harry W. Knight, 484 Avenue Road and George W. Gooderham, 1 Frybrook Road, all of Toronto. The Company is advised that no other person has any interest in the shares under option to Dr. Cowan stated in Item 16. There are no assignments, sub-underwritings or sub-option agreements in force or contemplated with respect to any of the aforementioned shares.
18. Details of any payments in cash or securities of the Company made or to be made to a promoter or finder in connection with a proposed underwriting or property acquisition.	None.
19. Details of any shares pooled, deposited in escrow, non-transferable or held under any voting trust agreement, syndicate agreement or control.	There are at present 978,965 fully-paid and non-assessable shares held in escrow by Crown Trust Company, Toronto subject to release with the consent of the Ontario Securities Commission, Quebec Securities Commission, Canadian Stock Exchange and the Company as to transfer or other dealings within the terms of escrow with the consent of the Ontario Securities Commission and Quebec Securities Commission. (NOTE—The Toronto Stock Exchange has also been added as one of the parties whose consent is required for any release from escrow of the above-mentioned shares.)
20. Names and addresses of owners of more than a 5% interest in pooled or escrowed shares and their shareholdings. (If shares are registered in the names of nominees or in street names, give names of beneficial owners, if possible.)	See below

Name and Address	Shareholdings
G. M. Brown, 2257 Carroll Road, Bay City, Michigan.	46,245 shares
John Terrence Flanagan, P.O. Box 364, Chibougamau, Quebec.	206,520 shares
Eli John Gauvreau, 420 Westview Drive, Sudbury, Ontario.	206,520 shares
Levi Francis Gauvreau, R.R. #3, Port Hope, Ontario.	206,512 shares
John McAdam, Jr., P.O. Box 364, Chibougamau, Quebec.	206,519 shares
Clara Ryan, 54 St. Leonard's Avenue, Toronto, Ontario.	16,649 shares
Wilfred Cowan, 14239 Chandler Park Drive, Detroit, Michigan.	90,000 shares
	Total: 978,965 shares

21. Names, addresses and shareholdings of five largest registered shareholders and if shareholdings are pooled or escrowed, so stating. If shares are registered in names of nominees or in street names, give names of beneficial owners, if possible, and if names are not those of beneficial owners, so state.

Draper, Dobie & Company Limited, 25 Adelaide Street W.. Toronto 1.	832,300 shares
Bay & Co. Ltd. 51 King Street W., Toronto 1.	378,200 shares
E. J. Gauvreau, 420 Westview Drive, Sudbury, Ontario.	224,288 shares (206,520 escrow)
L. F. Gauvreau, R.R. #3, Port Hope, Ontario.	223,378 shares (206,512 escrow)
John McAdam, Jr., Chibougamau, P.Q.	223,288 shares (206,519 escrow)

The Company has no knowledge of the beneficial ownership of shares registered in the names of Draper Dobie & Company Limited and Bay and Co. if such are not owned by the registered holders thereof.

22. Names and addresses of persons whose shareholding are large enough to materially affect control of the Company.	Messrs. Levi Francis Gauvreau, R.R.# 3, Port Hope, Ontario; Eli John Gauvreau, 420 Westview Drive, Sudbury, Ontario; John Terrence Flanagan, Chibougamau, Quebec; John McAdam, Jr., Chibougamau, Quebec, the holders of the original vendors shares, could through their personal holdings materially affect control of the Company.
23. Details of any registration with or approval or authority for sale granted by or any filing with a Securities Commission or corresponding Government body.	The shares of the Company have been qualified for public sale in Ontario and Quebec by the Ontario Securities Commission and the Quebec Securities Commission as of October 2, 1964, and the Underwriting-Option Agreement referred to in Item 16 has been accepted by the Canadian Stock Exchange as of September 29, 1964.
24. Has any application for registration with or approval or authority for sale by or any filing with a Securities Commission or corresponding Government body ever been refused, cancelled, suspended or revoked? If so, give particulars.	No
25. Particulars of any bonds, debentures, notes, mortgages, charges, liens or hypothecations outstanding.	None
26. If assets include investments in the shares or other securities of other companies, give an itemized statement thereof showing cost or book value and present market value.	None
27. Enumerate fully each of the following property classifications, giving claim or property numbers, approximate acreage, townships and mining camp or oil field:	
(a) Properties owned where titles vested in Company.	None
(b) Properties leased.	321 acres held under Petroleum and Natural Gas Lease No. 73601, Province of Alberta and being North one-half of Section 19, 1st Township, 27th Range West of the 4th meridian, Alberta.
(c) Properties otherwise held. Give particulars of title held by the Company in each instance (e.g. patented, unpatented, Crown granted, held under mining license, perpetual lease, etc.)	(i) 36 Mining claims held in McCorkill Township, Province of Quebec recorded with Registrar of Mining Titles, Quebec, as follows:

Miners Certificate No.	Claim Nos.
174661	1 - 5 incl.
174662	1 - 3 "
174898	1 - 5 "
174899	1 - 5 "
174950	1 - 5 "
174951	1 - 5 "
174952	1 - 5 "
199401	1 - 3 "

(ii) 29 mining claims in Townships of Barlow and Couvier, Quebec held by trustee on behalf of Company recorded with Registrar of Mining Titles, Quebec as follows:

Miners Certificate No.	Claim Nos.
206939	1 - 4 incl.
206940	1 - 4 "
206941	1 - 4 "
206942	1 - 5 "
206943	1 - 5 "
206944	1 - 4 "
206945	1 - 3 "

(iii) 4 mining claims in Township of McKenzie, Quebec held by trustee on behalf of Company recorded with Registrar of Mining Titles, Quebec as follows:

Miners Certificate No.	Claim Nos.
206955	1 - 2 - 5
212472	4

	(iv) By agreement dated April 20th, 1964 made with Tache Lake Mines Limited (no personal liability) 215 St. James Street W., Montreal, a Quebec company, the Company has been granted an option to acquire a 60% non-assessable interest in 19 mining claims located in the Township of Roy, Chibougamau area, Quebec on completion of a total of $25,000 spent in exploration work over a period to be completed not later than September 1st, 1966 of which a minimum of $10,000 will be spent the first year. No cash or share consideration has been paid or is payable for its option and the said claims are presently recorded with the Registrar of Mining Titles, Quebec as follows: Miners Certificate No. — Claim Nos. G2933 — 3, 4, 5 48800 — 1 - 5 incl. 42166 — 1 42167 — 1 - 5 incl. 42168 — 1 - 5 " (v) The Company holds an option on 8 mining claims McKenzie Township, Quebec, by agreement with Mid Chibougamau Mines Limited, a Quebec Company dated July 15th, 1964 being claims No. 1, 2 and 3 of each of Miners Certificates 63657-8 and Claims 3 and 4 on Certificate 124591. The Company may acquire a 60% non-assessable interest in the said claims by completion of $2,500 exploration work spent by July 15th, 1965, a further $2,500 by July 15th, 1966 and a further $5,000 by July 15th, 1967. No additional cash or share consideration is payable for the acquisition of such 60% interest.
28. Full particulars of any royalties or other charges payable upon production from each individual property.	None
29. Names and addresses of vendors of any property or other assets intended to be purchased by the Company showing the consideration to be paid.	None
30. Names and addresses of persons who have received or will receive a greater than 5% interest in the shares or other consideration to be received by the vendor. If the vendor is a limited company, the names and addresses of persons having a greater than 5% interest in the vendor company.	None
31. Are any lawsuits pending or in process against the Company or any of its properties, or are there any other circumstances which might affect the Company's position or title adversely? If so explain fully.	None
32. Describe plant and equipment on property or properties.	The Company does not own any mining plant or equipment at the present time as all work to date has been carried out by independent contractors (diamond drilling, engineering, etc.) who have used their own equipment.
33. Describe all development accomplished and planned.	To September 1st, 1964, 34,700ft. of diamond drilling has been completed on the property together with all preliminary, geophysical and survey work at a cost of approximately $228,000.00. Diamond drilling is still in progress and immediate plans call for the continuing of another 20,000ft. of drilling to complete the current program of proving up the known ore zones. Recommendations to the Company call for bulk sampling of the ore zones and possible de-watering of Roberge Lake which presently covers most of the "C-D" fibre zones which have been drilled.

34. Date and author of mining or petroleum engineer's or geologist's report filed with this application and available for inspection on request.	A report by G. H. Gibbs, B.A. Sc.P.Eng. dated September, 1964 as filed herewith together with earlier report by the same author dated August 10, 1964 as filed with the Ontario and Quebec Securities Commissions and the Canadian Stock Exchange and contained as part of the Prospectus of the Company dated September 15, 1964.
35. Full particulars of production to date.	None to date.
36. Have any dividends been paid? If so, give date, per share rate, and amount paid in dollars on each distribution.	None paid to date.
37. Name and address of the solicitor or attorney whose certificate that the applicant is a valid and subsisting company and that the shares which have been allotted and issued were legally created and are fully paid and non-assessable has been filed with the Exchange.	James Murdock DaCosta, Suite 100, 12 Richmond Street East, Toronto 1, Ontario.
38. (a) Have any shares of the Company ever been listed on any other stock exchange? If so, give particulars.	Shares of the Company were listed on the Canadian Stock Exchange on October 9, 1963.
(b) Is any application for listing the shares of the Company on any other stock exchange now pending or contemplated? If so give particulars.	No
(c) Has any application for listing of any shares of the Company ever been refused or deferred by any stock exchange? If so, give particulars.	No.
39. Particulars of the principal business in which each officer and director has been engaged during the past five years, giving the length of time, position held and name of employing company or firm.	*LEVI FRANCIS GAUVREAU*—President and Director is self-employed as a Mining Engineer and consultant during the past five years and President of McAdam Mining Corporation since January, 1961. *JOHN McADAM, Jr.*—Vice-President and Director is self-employed Mining Geologist during the past five years and a partner in the firm of Flanagan, McAdam and Co., Chibougamau, Quebec since 1961. *JOHN TERRENCE FLANAGAN*—Secretary-Treasurer and Director is self-employed Mining Geologist during the past five years and a partner in the firm of Flanagan, McAdam and Co., Chibougamau, Quebec since 1961. *ELI JOHN GAUVREAU*—Director self-employed as Mining Geologist during past five years. *FREDERICK CHARLES KNIGHT*—Director self-employed Mining Engineer during the past five years and partner in the firm of Simard, Knight & Associates, Toronto. *PHILIP SIDNEY CROSS*—Director self-employed as Mining Engineer during the past five years in the City of Toronto. *JAMES MURDOCK DaCOSTA*—Director, Barrister & Solicitor with the firm of Mungovan & Mungovan from 1959-1963 and with the firm of Kilmer, Rumball, Gordon, Davis & Smith from May, 1963 to the present date.
40. The dates of and parties to and the general nature of every material contract entered into by the Company which is still in effect and is not disclosed in the foregoing. Except for management contracts, do not include particulars of any contract entered into in the ordinary course of business carried on or intended to be carried on by the Company.	There are no material contracts in force other than in the ordinary course of business (diamond drilling, engineering, etc.) apart from the Underwriting-Option Agreement disclosed in Item 16.
41. Any other material facts not disclosed in the foregoing.	There are no other material facts relating to the affairs of the Company not disclosed herein.

STATEMENT SHOWING DISTRIBUTION OF ISSUED CAPITAL

as of September 30th, 1964

	Shares	Shares
FREE STOCK		
(a) Distributed and in the hands of the public (exclusive of the promoters, officers and directors of the Company and their agents or trustees).	3,029,260	
(b) Distributed and in the hands of the promoters, officers and directors of the Company and their agents or trustees.	67,282	
Total free stock		3,096,542
ESCROWED OR POOLED STOCK		
(c) Held in escrow or pool as set out in Item 19 of this application.		978,965
Total issued capital		4,075,507
RECORD OF SHAREHOLDERS		
Number of registered shareholders holding shares in class (a) above		431
Number of registered shareholders holding shares in class (b) above		7
Nunber of registered shareholders holding shares in class (c) above		7

STATEMENT SHOWING NUMBER OF SHAREHOLDERS

as of September 30th, 1964

Number						Shares
34	Holders of	1	—	100	shares	2,803
238	" "	101	—	1000	"	151,700
52	" "	1001	—	2000	"	91,600
19	" "	2001	—	3000	"	51,425
13	" "	3001	—	4000	"	49,150
10	" "	4001	—	5000	"	48,925
72	" "	5001	—	up	"	3,679,904
438	Stockholders				Total Shares	4,075,507

Dated at Toronto, Ontario, the 9th day of October, 1964

Corporate Seal

McADAM MINING CORPORATION LIMITED

"L. F. GAUVREAU",
President

"E. J. GAUVREAU",
Director

CERTIFICATE OF UNDERWRITER/OPTIONEE

(NOTE — Not applicable with respect to incentive or employee options.)

To the best of my knowledge, information and belief, all of the statements and representations made in this listing application and in the documents filed in support thereof are true and correct.

Corporate Seal

DOBIECO LIMITED

"H. W. KNIGHT"

"G. W. GOODERHAM"

FINANCIAL STATEMENTS

EXHIBIT A

McADAM MINING CORPORATION LIMITED

(Incorporated April 2, 1959 under The Corporations Act, Ontario)

BALANCE SHEET AS AT JUNE 30, 1964

ASSETS

Current Assets:		
Cash		$134,980.87
Investment receipts—at cost ($100,000.00 bearing interest at 4% per annum; $100,000.00 bearing interest at 5% per annum)		200,000.00
Accrued interest		2,964.39
Total current assets		337,945.26
Mining Claims—at staking cost		1,094.91
Equipment—at cost less accumulated depreciation $792.00		1,163.55
Petroleum and Natural Gas Lease—at cost (Note 1)		10,000.00
Exploration and General Expenditures—Exhibit C		267,810.03
Other Assets—at cost:		
Deposit	$ 941.25	
Incorporation and organization expense	2,260.00	
Total other assets		3,201.25
Total		$621,215.00

LIABILITIES

Current Liabilities:		
Accounts payable and accrued charges		$ 27,674.65
Shareholders' Equity:		
Capital stock (Notes 1 to 5):		
Authorized—6,500,000 shares of $1.00 par value each		
Issued and fully paid (Note 2)	$820,557.00	
Contributed surplus	2,280.00	
Deficit—Exhibit B	(229,296.65)	
Net shareholders' equity		593,540.35
Total		$621,215.00

The attached notes are an integral part of the financial statements.

Approved on behalf of the Board:

"L. F. GAUVREAU," Director

"J. M. DaCOSTA," Director

EXHIBIT B

McADAM MINING CORPORATION LIMITED

STATEMENT OF DEFICIT

FOR THE PERIOD FROM INCORPORATION ON APRIL 2, 1959 TO JUNE 30, 1964

Accumulated Deficit from Incorporation on April 2, 1959 to April 30, 1963	$220,604.30
Write-off since April 30, 1963 of Expenditures on Properties Abandoned:	
Claim staking costs	1,600.00
Option payments	2,942.35
Exploration expenditures—Exhibit C	4,150.00
Deficit, June 30, 1964	$229,296.65

EXHIBIT C

STATEMENT OF EXPLORATION AND GENERAL EXPENDITURES

FOR THE PERIOD FROM INCORPORATION ON APRIL 2, 1959 TO JUNE 30, 1964

	Total from Incorporation on April 2, 1959 to April 30, 1963	Expenditures April 30, 1963 to June 30, 1964	Less Transfer to Deficit from April 30, 1963 to June 30, 1964 on Properties Abandoned	Balance June 30, 1964
Exploration Expenditures:				
Surface exploration:				
Geological	$ 1,769.62	$ 10.00	$ —	$ 1,779.62
Geophysical	1,446.64	301.77	—	1,748.41
Diamond drilling	41,873.21	152,535.27	3,650.00	190,758.48
Assaying	2,507.26	4,987.69	—	7,494.95
Prospecting	2,461.29	—	—	2,461.29
Engineers' fees	4,010.00	11,704.03	—	15,714.03
Transportation	1,730.50	4,830.24	—	6,560.74
Filing fees and licences	845.80	504.20	—	1,350.00
Unemployment insurance	93.64	73.96	—	167.60
Annual lease rental	—	321.00	—	321.00
Workmen's compensation	—	150.00	—	150.00
	56,737.96	175,418.16	3,650.00	228,506.12
General Expenditures:				
Telephone and telegraph	5,145.45	3,658.55	—	8,804.00
Advertising	2,589.90	1,621.27	—	4,211.17
Legal, audit and listing fees	3,519.75	3,930.75	—	7,450.50
Transfer agent's fees	1,346.07	1,105.04	—	2,451.11
Office and general expenses	6,653.32	4,031.60	—	10,684.92
Traveling expenses	6,468.27	4,576.01	500.00	10,544.28
Corporation taxes	306.70	35.00	—	341.70
Business taxes	121.09	96.38	—	217.47
Depreciation	167.78	624.22	—	792.00
President's salary	1,500.00	7,000.00	—	8,500.00
	27,818.33	26,678.82	500.00	53,997.15
Total Expenditures	84,556.29	202,096.98	4,150.00	282,503.27
Deduct Interest earned on Investments	5,798.89	8,894.35	—	14,693.24
Net Exploration and General Expenditures	$ 78,757.40	$193,202.63	$ 4,150.00	$267,810.03

The attached notes are an integral part of the financial statements.

McADAM MINING CORPORATION LIMITED
NOTES TO FINANCIAL STATEMENTS
JUNE 30, 1964

1. Under agreement dated January 23, 1963 the company acquired a petroleum and natural gas lease in the Province of Alberta expiring July 12, 1969, as consideration for which the company issued 100,000 fully-paid and non-assessable shares valued at 10¢ per share, and granted an option to purchase an additional 50,000 fully paid shares in the company at 30¢ per share exercisable on or before January 23, 1965.

2. Details of shares issued and fully paid:

	No. of Shares	Par Value	Discount	Issued and Fully paid Net
Issued for mining claims since abandoned....	1,200,000	$1,200,000.00	$1,020,000.00	$180,000.00
Issued for petroleum and natural gas lease (Note 1)............................	100,000	100,000.00	90,000.00	10,000.00
Issued for cash.........................	1,275,507	1,275,507.00	1,039,950.00	235,557.00
Balance, April 30, 1963..................	2,575,507	2,575,507.00	2,149,950.00	425,557.00
Issued for cash—April 30, 1963 to June 30, 1964................................	1,300,000	1,300,000.00	905,000.00	395,000.00
Balance, June 30, 1964..................	3,875,507	$3,875,507.00	$3,054,950.00	$820,557.00

3. An option granted to Dobieco Limited pursuant to an underwriting agreement dated May 27, 1963 to purchase 200,000 shares of the company's unissued capital stock at 50¢ per share was outstanding at June 30, 1964. This option was exercised on August 5, 1964.

4. Pursuant to an agreement dated August 5, 1964 with Dobieco Limited the company has agreed to sell 200,000 shares of its capital stock at 60¢ per share payable forthwith upon acceptance for filing of the company's prospectus (hereinafter called the effective date) by the Ontario and Quebec Securities Commissions and the Canadian Stock Exchange and has further granted options to Dobieco Limited to purchase 500,000 shares of its capital stock as follows:

Number of Shares	Price Per Share	Payable
200,000	$ .60	Within 3 months from the effective date
100,000	.70	Within 6 months from the effective date
100,000	.80	Within 9 months from the effective date
100,000	1.10	Within 12 months from the effective date

All unexercised options shall be null and void twenty-four (24) months from the date of the agreement.

5. Of the 3,875,507 shares issued to June 30, 1964, 978,965 shares are held in escrow subject to release on consent of the Ontario Securities Commission, the Quebec Securities Commission, the Canadian Stock Exchange and the directors of the company.

6. The company has acquired options on a 60% interest in 27 mining claims. The consideration necessary to acquire the 60% interest is as follows:

   —on 8 claims situated in the Township of Mackenzie, Province of Quebec, a minimum expenditure of $10,000.00 on exploration and development work prior to July 15, 1967;

   —on 19 claims situated in the Township of Roy, Province of Quebec, a minimum expenditure of $25,000.00 on exploration and development work prior to September 1, 1966. To date the company has expended approximately $6,000.00 on such exploration work.

AUDITORS' REPORT

TO THE DIRECTORS OF McADAM MINING CORPORATION LIMITED:

We have examined the balance sheet of McAdam Mining Corporation Limited as at June 30, 1964 and the statements of deficit and exploration and general expenditures for the period from incorporation on April 2, 1959 to June 30, 1964 and have received all the information and explanations we have required. Our examination included a general review of the accounting procedures and such tests of accounting records and other supporting evidence as we considered necessary in the circumstances.

In our opinion the accompanying balance sheet and statements of deficit and exploration and general expenditures present fairly the financial position of the company as at June 30, 1964 and the results of its operations for the period from incorporation on April 2, 1959 to June 30, 1964, in accordance with generally accepted accounting principles consistently applied.

DELOITTE, PLENDER, HASKINS & SELLS
Auditors.

Toronto, Ontario
August 10, 1964.

ENGINEER'S REPORTS

PROFITABILITY REPORT
McADAM MINING
CORPORATION LIMITED

(*All exhibits, maps and plans referred to herein are on file at The Toronto Stock Exchange.*)

PURPOSE AND SCOPE

After three years of diamond-drilling, investigation and testing, at a cost of $300,000, McAdam Mining Corporation Limited have instructed the writer to report on the feasibility and profitability of putting their McCorkill Township asbestos property into production. The report which follows also refers to other properties controlled by the Company, to the tonnage and grade of the "A" and "B" zones on the McCorkill property and to the fact that drilling is still adding substantial tonnage to the reserves, but, it does not attempt to calculate the ultimate profit from these other potential sources.

The economic study is therefore confined to a single pit on the "C-D" zone. Exclusion of the 27 million tons available from a pit on the "B" zone is perhaps academic, because the drill hole spacing is wider than customarily accepted. A few drill holes (with better core recovery) will probably permit this tonnage to be added to the drill-indicated reserves and thus extend the operating life for 10 years beyond the 15 years' life given for the "C-D" pit.

It should also be noted that this 15 year life for the "C-D" pit is not its economic limit. If carried 200 feet deeper (at 3:1 waste to ore ratio) the life would be extended another 4 years. However, such deepening of the "C-D" pit is not to be recommended (due to the higher operating cost) if similar ore can be more cheaply obtained, as now appears probable to the east.

SUMMARY AND CONCLUSIONS

1. Diamond drilling has indicated 40,000,000 tons of chrysotile-asbestos ore on the Company's McCorkill Township property, which can be mined at a profit by open-pit mining. There is good evidence of an additional 60,000,000 tons of probable open-pit ore of similar grade. The asbestos is in the form of slip fibre. Selective mining and screen beneficiation could convert the 40 million tons into 22 million tons of concentrated mill feed having the following recoverable and saleable content:

GRADE AND VALUE OF MILL FEED

Grade	4M	6D	7D	Total Yield
Yield	1.23%	2.03%	1.81%	5.07%
Value	$2.39	$1.67	$1.30	$5.36

The above values are at Canadian list prices, less freight equalization. Canadian asbestos is currently being sold at a discount of 10% below list prices but realization before 1968 of full list prices is predicted.

2. It is proposed to mill the 22,000,000 tons of beneficiated ore at the rate of 5,000 tons per day, 6 days per week, in 15 years. The average annual production would be:

Grade	4M	6D	7D	Total
Tons	18,450	30,450	27,150	76,050

It is assumed that a market for this production will be provided through participation in the project by others. If desired to facilitate marketing, the above grades could be combined in a single product, Grade 5R, without sacrifice of yield or revenue.

3. The new capital required to put the property into production is estimated at $14,800,000, excluding $2,500,000 working capital and excluding $1,200,000 equity capital already underwritten or under option.

4. The estimated rate of cash flow would repay a $10,000,000 loan with 7% interest and a $2,500,000 loan with 6% interest in the first five years of operation, then generate over $22,000,000 in the remaining 10 years for the return of $6,000,000 equity capital with interest.

5. Evaluation of a slip-fibre deposit from core-milling samples is a multi-stage calculation requiring a factor of safety with each step. The procedure involves the obvious but unavoidable danger of compounding the safety-factors, with an ultra-conservative result. This report probably errs in this direction. The recommended solution is a bulk-sample, in which a test-pit in the ore-body would be drilled off with a core-drill, the holes blasted and broken rock milled in a full-scale mill. The core-milling results could then be compared with mill expectancy. Such a test should include screen-concentration after crushing and before final milling.

PROPERTIES

1. McCorkill Township, Quebec — The Company holds a contiguous group of 36 unpatented claims, located in the northwest part of the township, 20 miles east of the town of Chibougamau. (Exhibit No. 2). The claims, numbered below, are in good standing.

Miner's Certificate	Claims
174661	1 - 5 inclusive
174662	1 - 3 "
174898	1 - 5 "
174899	1 - 5 "
174950	1 - 5 "
174951	1 - 5 "
174952	1 - 5 "
199401	1 - 3 "

All work done in the period under review has been confined to this property—chiefly diamond-drilling and drill-core analysis for the evaluation of four deposits of chrysotile-asbestos found thereon to date. The property boundaries have not been surveyed but are estimated to contain about 1,400 acres.

2. Roy Township, Quebec — By agreement dated April 20, 1964 with Tache Lake Mines Limited, the Company optioned a contiguous group of 19 unpatented mining claims in the northeast part of this township, (Exhibit No. 3), numbered as follows:

Miner's Certificate	Claims
42167	1 - 5 inclusive
G2933	3, 4, 5
48800	1 - 5 inclusive
42168	1 - 5 "
42166	1

The agreement calls for minimum work requirements to obtain a 60% interest within a 2-year period. The property adjoins the McCorkill property on the west and covers the westward extension of the same band of favourable ultra-basic intrusive rock for a length of 1.5 miles. Previous work by Tache Lake Mines Limited consisted of test-pitting (showing asbestos) and a ground magnetometer survey. The aeromagnetic survey performed by Dominion Gulf Company and published by the National Topographic Surveys (Map No. 542G) shows a strong anomaly over this property.

The Company proposed to conduct a magnetometer survey, together with geological mapping, to be folowed by diamond-drilling, if indicated. The cost of this proposed work is estimated at $15,000 and is included in the Capital Cost Estimate.

3. McKenzie Township, Quebec — By agreement dated July 15, 1964, with Mid-Chibougamau Mines Limited the Company optioned a contiguous group of 8 unpatented mining claims in the west central part of McKenzie Township, north of Lake Antoinette (Exhibit No. 4), numbered as follows:

Miner's Certificate	Claims
63658	1, 2, 3
63657	1, 2, 3
124591	3, 4

The terms are similar to the Tache Lake agreement, giving the Company a 60% interest on compliance with reasonable obligations. There is evidence of line cutting on the property but records of previous work done are not available.

The Company also acquired by staking 4 claims adjoining the above-mentioned property on the south, being Claims 1, 2 and 5 under Miner's Certificate No. 206955 and Claim 4 under Miner's Certificate 212474. The location is 18 miles west of the Roy Township property and 4 miles northwest of Chibougamau, on the same ultra-basic belt as aforementioned. Title to these claims has not yet been transferred to the Company. There is no record of previous work having been done on these claims. An expenditure of $10,000 is recommended for this property and is included in the Capital Cost Estimate.

4. Barlow and Cuvier Townships, Quebec — Some 12 miles farther west, on the boundary between Barlow and Cuvier Townships, the Company has staked 29 claims covering the serpentine belt for a length of 4 miles (Exhibit No. 5). Anomalies indicated in a ground magnetometer survey performed by Dominion Gulf Company, (date unknown), and asbestos in trenching done by the same Company, will be investigated. The estimated cost of the recommended work is $15,000. The title to these claims has not yet been transferred to the Company. The claim numbers are:

Miner's Certificate	Claims
206939	1 - 4 inclusive
206940	1 - 4 "
206941	1 - 4 "
206942	1 - 5 "
206943	1 - 5 "
206944	1 - 4 "
206945	1, 2, 3

McCORKILL TOWNSHIP PROPERTY

Because of original and continuing encouraging results of diamond-drilling on this property, work and expenditures by the Company have been concentrated on it. The remainder of this report will be confined to a review of this work.

ACCESS

The property is 20 miles east of the town of Chibougamau, which is connected with St. Felicien on Lake St. John by 150 miles of gravel highway and 141 miles Canadian National Railway. St. Felicien to Quebec City is 206 miles by paved highway and rail. From St. Felicien to the docks at Bagotville is 96 miles by rail. The nearest port for overseas shipments would therefore be 237 miles from Chibougamau to Bagotville. (Exhibit No. 1).

Chibougamau is also served by rail from Senneterre and Noranda to the southwest. There is a daily flight service between Val d'Or and Chapais, which is 28 miles southwest of Chibougamau by road.

A gravel highway from Chibougamau northeast to Lake Waconichi passes within seven miles of the property and is connected with it by winter tractor road.

Fecteau Air Services uses Cache Lake, 7 miles southwest of Chibougamau by road, has a base for charter float or ski planes. It is 21 miles or about 10 minutes flight from Cache Lake to Roberge Lake, near the center of the property.

FACILITIES

In the event of a mining operation on the property, 7 miles of road construction would provide a 20 mile commuting distance from Chibougamau, where experienced mine labour is available. Water and lumber are plentiful in the area.

The copper mines in the Chibougamau area are well supplied with hydro electric power by Hydro-Quebec. For this project it is assumed that a new power line 25 miles long will be required. Further investigation by Hydro-Quebec may reduce this considerably.

TOPOGRAPHY

Roberge Lake is about 1,370 feet above sea level and drains southwest into Lake Chibougamau, 5 miles southwest. Parallel to the regional trend of surface features there is little change in elevation in an east-northeast west-southwest direction but just north of Roberge Lake there is a ridge which rises 500 feet above the lake and is one of the most prominent hills in the township. (Exhibit No. 9).

Underbrush and overburden on the property are light. Depth of soil is about 5 feet increasing to 25 feet under Roberge Lake.

CLIMATE

Weather in Chibougamau is comparable with Noranda, varying from 95°F to —48° (1936-1950). Annual precipitation is 42 inches including 141 inches of snowfall.

GEOLOGY

A general geological map of the property has been prepared by the Company's geologists. (Exhibit No. 6). As indicated by Longley (Reference 1) and Mawdsley and Norman (Reference 3) it features a wide east-west band of ultra-basic intrusives through the northern part of the 3½ mile length of the property. This band, described by Mawdsley as "serpentine (derived in part from peridotite), pyroxinite and some gabbroic rocks" extends for a broken length of 24 miles across the Townships of McKenzie, Roy and McCorkill. It contains, 7 miles west of the property, a deposit of asbestos on Asbestos Island, first discovered in 1903. On the subject property there is evidence of intensive faulting. The 60 mile long Tache Lake fault is believed to strike northeast through Roberge Lake and is crossed by a number of left hand north-northeast faults which cut and displace the band into blocks with an overall east-northeast trend. In this respect, the structure is similar to that of the asbestos deposits in Munro Township, Ontario. Whether the relationship which has been established in Munro between the location of ore zones and faults can be applied here remains to be seen but it is safe to say that this intensification of fault action in a serpentinized-peridotite band is favourable for asbestos deposition.

This persistent band of ultra-basic intrudes and lies parallel to the trend of older rocks, consisting of metamorphosed volcanic flows and sediments (greywacke), all of Precambrian age. Inclusions of the intruded rocks occur in the intrusive. North of the above-mentioned band another basic intrusion forms a prominent ridge on the property. Its age relation to the serpentinized band is unknown, has no economic value, being highly altered to a dense dioritic or diabasic rock with a magnetite matrix.

HISTORY

In 1950, parts of the property were examined by Dr. W. W. Longley for the Quebec Geological Survey. (Reference 1).

In 1956, New Jason Mines Limited, together with Bouzan Mines Limited, trenched and stripped in various locations, chiefly in the serpentine-peridotite sill in the north central section of the property. It is recorded that eight diamond-drill holes were put down, totalling about 2,300 feet, mostly in greywacke, in search of copper. The results, as reported by Dr. R. Bruce Graham (Reference 2) were only mildly encouraging but the work led to the discovery of asbestos in the central part of Claim C-174661, No. 2 near the center of the property. A 478-pound sample was blasted from unweathered rock and milled by the Quebec Department of Mines Laboratory in Thetford Mines to yield a reported 8.43% chrysotile asbestos, mainly "slip" variety, with an ore value of $17.72 per ton. It is stated that the sample was taken from a zone of serpentinized-peridotite 9,500 feet long by 600 feet wide, dipping vertically but the sample is not claimed to be representative of the entire zone.

In 1957, Newlund Mines Limited did some outcrop mapping in the southwest part of the property.

After acquiring the western group of 18 claims in February, 1961, the Company ran a ground magnetometer survey to confirm and define the aeromagnetic survey (Exhibit No. 7), did considerable prospecting, geological mapping, trenching and blasting. The work indicated favourable areas with many new surface exposures of asbestos. In June, 1961 a systematic diamond-drilling program was started.

An electromagnetic survey was run over the magnetic anomalies in and near an anorthosite mass in the southeastern section of the property. Drilling here for base metals in 1962 gave negative results.

SUMMARY OF WORK DONE

Drilling to date has revealed four zones (Exhibit No. 8) of concentration of chrysotile asbestos (Exhibit No. 10) in the form of "slip" fibre with minor concurrence of cross and slant veins up to ¾ in. wide. These zones have been named "A", "B", "C" and "D", in the order drilled. Footage drilled now totals 37,599, as follows:

	"A" Zone	"B" Zone	"C" Zone	"D" Zone	Totals
Holes	15	8	33	8	64
Footage	7,001	4,723	19,109	6,766	37,599
Average Depth	467ft.	590ft.	579ft.	846ft.	587ft.

By March, 1964, 9 of the 25 holes (NX size - 2⅛ inches diameter) in the "C" area had cut the "C" fibre zone at 200 foot intervals along a 1,400 foot length of its apparent northeast-southwest strike. The average width (350 feet) and the grade (over 5% fibre) as indicated by the laboratory yield from the drill-cores prompted consideration of intermediate drilling to ensure continuity of value between holes. At the same time, it was noted that core losses with NX core were increasing. It was therefore decided to drill H-size (3in. diameter) holes between the holes already drilled. A total of 8 such larger sized holes were completed, totalling 4,969 feet (included in the above tabulation of "C" zone drilling). The core from these holes, weighing 28,279 pounds, was treated as bulk samples in the Quebec Department of Mines Pilot Mill (Exhibit No. 11).

While the 3in. holes were being drilled, the program of NX holes at 200 foot intervals was continued to explore the "C" zone to the northeast. Core recovery from the smaller holes improved to that being obtained in the larger holes at greater cost and the large hole drilling was therefore discontinued.

All cores were logged by the Company's qualified geologists for rock type, structure, asbestos type and quality, associated minerals and a progressive estimate made of asbestos content. Any core containing appreciable content of fibre was then milled in the Quebec Department of Mines' laboratory in order to extract the fibre by conventional methods.

RESULTS OF WORK

"A" Zone — The 15 drill holes at 200 foot intervals (Exhibit No. 12) have indicated 3 parallel bands of slip fibre concentration to a zone 1,600 feet long by 600 feet wide. An open-pit 350 feet deep would involve a 2 to 1 ratio of wall-rock and inter-zone waste to fibre-zone material, grading as follows:

Tonnage of "A" Fibre-Zone Available by Open-Pit	Weighted Average Grade	
	% Fibre	Rock Value
2,000,000 tons	3.60%	$4.82 per ton

Dip of the zone is probably vertical.

The average fibre value indicated by the Quebec Standard Tests and prevailing list prices of the laboratory products from the milling of the drill-cores was $134.00 per ton in the form of Groups 4, 5, 6 and 7 grades of fibre. This is the gross or basic value, indicated by drilling and subject to the factors given in "Net Ore Value".

Holes 4-11 and 4-15 indicate the possibility of extending this "A" zone to the east.

RESULTS OF WORK

"B" Zone — Eight transverse holes at 400 foot intervals have been drilled in this area, which is 2,500 feet southwest of the "A" zone. (Exhibit No. 12). They indicate a fibre zone 300 feet wide by 2,300 feet long, probably near vertical in dip. An open-pit 600 feet deep (Exhibits 13 & 14) would involve a 1.5:1 waste to fibre zone ratio, grading as follows:

Tonnage of "B" Fibre Zone Available by Open-Pit	Weighted Average Grade	
	% Fibre	Rock Value
27,000,000 tons	3.94%	$4.32 per ton

The average fibre value indicated by the Quebec Standard Tests and prevailing list prices of the laboratory products from the milling of the drill cores was $110.00 per ton (basic value, not net value), distributed as follows:

Group	4	5	6	7	Total
Percent	20%	14%	32%	34%	100%

As in the "A" zone, the type of fibre encountered in the drill-cores was predominantly slip variety but more slant and cross-fibres from 1/16in. to 3/4in. in width was observed. Core recovery in the "B" zone was poor (about 60%) with considerable fibre observed in the sludge. It is probable that further, more careful drilling and bulk testing will show that the tonnage and grade have been underestimated.

Although the correlation between drill-holes appears reasonable, with values paralleling the peridotite contact and the strike of the magnetic anomaly, the 400 foot spacing of holes in the "B" zone exceeds accepted good practice. An equal amount of further intermediate drilling would be required to qualify the above tonnage and grade as "drill indicated".

The magnetometer survey suggests the possibility of extending the "B" zone for 400 feet to the west and 600 feet to the east.

Drill holes B-1 and B-7 indicate the possibility of a parallel band to the south of that described above and separated from it by zero to 180 feet of lower grade material. Because these two holes are 800 feet apart, more drilling will be required to ensure continuity, grade and width.

"C" and "D" Zones — These two zones overlap "en echelon"; could be mined from a common pit and are therefore considered together (Exhibit No. 15).

The 33 holes in the "C" zone, together with the first 4 of the 8 holes drilled in the "D" zone have covered a strike length of 3,700 feet to indicate a combined horizontal width of 350 feet containing 4.54% fibre (Exhibits Nos. 15 and 16) in terms of laboratory yield of products from core milling (basic value). The central 1,350 feet of this 3,700 foot length, or 37% has been drilled off at 100 foot intervals, the narrower western end at 200 foot intervals and the much wider eastern end at 400 foot intervals, giving reasonable assurance of continuity. The fibre is predominantly "slip" type.

Two other holes in the "D" zone drilled at 400 foot intervals to the east of the above length have indicated a probable extension of the zone in that direction but because the sections are incomplete they are not included in the current calculation.

The greater number of drill-holes in the "C" zone, compared to the "A" and "B" zones, permits more precise determination of its attitude - between 80 and 85 degrees south dip. An open-pit 600 feet deep would require draining of shallow Lake Roberge and the removal of 44 million tons of wall-rock and inter-zone material to permit the mining of the following fibre zones. (Exhibit No. 17).

Tonnage of "C" and "D" Zones	Weighted Average Grade	
Available by Open-Pit	% Fibre	Rock Value
40,000,000 tons	4.54%	$5.23 per ton

The basic fibre value is $116.00 per ton, distributed as follows:

Group	4	6D	7D	Total
Percent	29%	38%	33%	100%

Holes D-5 and D-8 drilled 4,000 feet to the east of the above-described pit, on strike, show a horizontal width of 600 feet grading 3.88% fibre, being 37% Group 4 and 63% Group 6, worth $5.00 per ton of rock and $129.00 per ton of fibre at current list prices (basic value). This occurrence may be the eastern extension of the "D" zone. If so, future drilling of the intervening ground may multiply the presently indicated tonnage for the property.

"C-D" PIT

SELECTIVE MINING AND DILUTION

In the proposed "C-D" pit, the drill-core samples indicate that 18% of the fibre-zone material is sub-marginal (Exhibit No. 18), and is in the form of sufficiently wide bands to permit selective mining. Blast-hole sampling will supplement the diamond-drilling information for closer control of pit operations but precise determination of cut-off lines in the pit will never be possible. It is therefore assumed that 20% of this included waste-rock will go to the primary crusher and that an equal tonnage of the remaining ore will go to the waste dump, as tabulated below:

	Open Pit Tonnage	GR. 4	Drill Indicated Grade 6D	7D	Total
"C-D" Fibre Zone	40,000,000	1.31%	1.72%	1.51%	4.54%
Less: Waste — 80% of 18%	5,800,000	0.48	0.42	1.05	1.95
	34,200,000	1.45%	1.94%	1.59%	4.98%
Less: Ore to Waste Dump	1,500,000	1.45	1.94	1.59	4.98
Net to Primary Crusher	32,700,000	1.45%	1.94%	1.59%	4.98%

Considering the "C-D" zones as made up of 82% ore and 18% waste, the above calculations allow for a dilution of 4.3% and a loss of 4.4% of the diluted ore to the dump.

BENEFICIATION

After two or three stages of crushing, it is proposed to concentrate the selected pit rock by rejecting one-third on scalping screens. Laboratory tests (Exhibit No. 19) indicate that oversize so rejected will contain less than 2.5% fibre, distributed as follows:

Fibre Group	4	5	6	7	Totals
In Samples	25%	22%	22%	31%	100%
In Rejects	27%	15%	21%	37%	100%
In Product	30%	—	40%	30%	100%

The fibre content of the samples averaged 4.51% versus the calculated grade of 4.98% for the selectively mined pit product. On the other hand, lower reject values may be expected with blasted run-of-pit rock after two stages of crushing than with solid diamond-drill core after one stage of crushing. Until large bulk samples are available, as closer representation of operating conditions, for further beneficiation tests, the above laboratory results are therefore considered to be conservative.

	Tonnage (Round Figure)	Gr. 4	Grade & 6D	7D	Total
Selectively Mined R.O.M.	33,000,000	1.45%	1.94%	1.59%	4.98%
Screen Rejects — 1/3	11,000,000	0.65	1.04	0.75	2.44
Calculated Mill Heads	22,000,000	1.85%	2.39%	2.01%	6.25%

NET ORE VALUE

Fibre Yield — All the foregoing grade values of rock and fibre are based on laboratory products from the milling of drill-cores, evaluated by Quebec Standard Test and prevailing Canadian list prices (Exhibit No. 20), f.o.b. southern Quebec mines. Current competitive selling of asbestos demands that the products also meet other tests, which vary in importance and specification with end-use, e.g. dust content, strength, color, drainage rate, magnetite content, bulk, etc.

The laboratory products from drilling in the "C" zone of the subject property were analyzed (Exhibit No. 21) and found to contain excessive grit and dust, which contributed to poor color, low drainage rate, low strength and a high magnetic rating. Investigation revealed that the magnetite was not inherent in the fibre but was derived from the milling of the host rock which contains about 10% magnetite vs. 3% to 4% at Asbestos, Quebec . (Reference No. 5).

A composite test of the Group 4 fibres produced from the drill-cores indicates that removal of excessive dust to saleable limits (25%) would reduce the apparent yield by 32.6% and, at the same time, would upgrade the product from 9% to 56% in unit value. (Exhibit No. 22). The cleaned product would have acceptable color, magnetite content and drainage.

Preliminary strength tests, estimated from the breaking rate, suggest strength-unit ratings of 75 to 85. If confirmed by the final strength-unit tests (not yet available) production of Group 4 fibre for asbestos-cement use should be avoided by blending it with shorter fibres to produce a Group 5 product. To be conservative, for purposes of this report, pending bulk milling and strength tests, the yield of Group 4 fibre from the milling of drill-cores is reduced by one-third, with no allowance for upgrading.

A composite test of the Group 6 and 7 fibres (Exhibit No. 23) indicates that the apparent yield should be reduced by 5% to produce saleable products and that the unit value would increase by 4% in doing so. In this report, the upgrading is ignored and the indicated yield of Group 6 is reduced by 15% and Group 7 by 10%, in order to further reduce the magnetite content and improve the color of these grades.

The adjusted fibre content of the mill feed, after selective mining, beneficiation and dedusting would therefore be:

	4M	6D	7D	Total
By Core-Mill Products	1.85%	2.39%	2.01%	6.25%
Reduce for Saleability	33⅓%	15%	10%	
Net Recovery	1.23%	2.03%	1.81%	5.07%

FREIGHT EQUALIZATION

Canadian National Railways have provided tentative freight rates from the property to the port of Quebec for overseas shipments and to three areas of heavy asbestos consumption in the United States. (Exhibit No. 24). With arbitrary distribution of shipments of one-half overseas and one-half to the United States, divided equally to the three U.S. areas, the average freight equalization with Danville, Quebec, would be $4.15 per ton shipped.

SALES DISCOUNTS

The Quebec asbestos industry has suffered for the last five or six years from heavy, non-uniform discounting of the quoted list prices. Although opinions vary, the writer believes that current discounting averages 10% off list, and that full list prices or greater will be received before 1968. In the statement of estimated earnings (Exhibit No. 32) a 10% sales discount has been applied to 1967 production but no discount thereafter.

NET SALES VALUE (after 1967)

	4M	6D	7D	Total
Adjusted Recoverable Content of Mill-Feed	1.23%	2.03%	1.81%	5.07%
Fibre Distribution	24%	40%	36%	100%
Net Sales Price before Equalization	$200.00	$86.00	$75.00	$109.00 (Ave.)
Freight Equalization	$ 5.59	$ 3.38	$ 3.45	$ 4.15
Net Sales Price	$194.41	$82.62	$71.55	$105.71
Net Mill-Feed Value	$ 2.39	$ 1.67	$ 1.30	$ 5.36

FIBRE MARKETS

Canadian asbestos, both slip and cross fibre, is sold world-wide. By projecting the trend of increasing sales, it may be fairly argued that demand will exceed supply in a few years and thus permit a new, independent producer to find a ready market for all his production. In this report, in order to determine the amount of working capital required as affected by rate of market penetration, and to determine the net sales revenue, it is assumed that either the supply-demand balance will in fact be sufficiently favorable for independent production or that the Company will join forces with other interests who need fibre.

BY-PRODUCTS

The relatively high magnetite content of the serpentine host-rock prompted investigation of the possibility of an iron concentrate as a by-product. The minus 10 mesh and minus 48 mesh fractions of the laboratory tailings from milling of drill-cores were tested by conventional magnetic separation with and without regrinding. (Exhibit No. 26). The best concentrate produced was 56% iron — below commercial grade. Microscopic examination indicated that the sharp, hard grains of magnetite had been driven into the particles of soft serpentine, preventing clean separation.

A sample of the minus 1/32″ rock-screen drops was tested at the Er Lez plant in Erie, Pennsylvania on their special Superpower Series 17 Concentrator Magnet which uses alternating Current. (Exhibit No. 26). The primary purpose of this test was to remove the magnetite from the sand before attempting to extract the short fibre. The test indicates that the equipment has a high capacity and potential effectiveness for the purpose. The magnetic product (37% to 47% of the sample) may permit a commercial iron concentrate to be produced by further treatment.

PRODUCTION PLANNING

PLANT CAPACITY

The proper size of an asbestos mill for this property involves consideration of reserves, markets, capital and operating costs. All information now available indicates that the mill should have a capacity to handle at least 5,000 tons per day of selected and beneficiated ore from the open-pit, 6 days per week, 300 days per year or 1.5 million tons per year. Fibre production at this rate from the "C-D" zone, after all allowances is estimated at 76,050 total tons per year, divided 18,450 tons Group 4, 30,450 tons Group 6 and 27,150 tons Group 7, or alternatively a total of 76,050 tons of Grade 5R.

The plant layout (Exhibit No. 9) is arranged for possible future expansion, minimum pit-truck haul, protection from open-pit blasting and underground subsidence as well as proximity to an adequate tailings disposal area.

LIFE OF OPERATIONS

After providing for dilution, selective mining and beneficiation it has been estimated that there are 22 million tons of mill-feed now indicated by diamond-drilling in the "C-D" zone, available by open-pit mining to a vertical depth of 600 feet below the surface of Roberge Lake. This would provide 15 years of operation at the above-proposed milling rate of 1.5 million tons per year.

Recent drilling has indicated probable extension of tonnage and operating life immediately to the east of the pit.

A similar pit on the "B" zone would yield 15 million tons of selected and beneficiated material or an additional 10 years' operation after beneficiation at the same rate but, because further confirmation drilling is required to establish continuity and grade, it is not being included in this profitability estimate.

Current drilling 4,000 feet to the east of the proposed "C-D" pit also indicates the probability of considerable extension of operating life.

MINING CONSIDERATIONS

Open-pit mining, rather than any form of underground or glory-hole mining, is recommended for two reasons:

(1) Lowest possible capital and operating costs.

(2) Maximum preservation of length, cleanliness and "crudiness" of fibre.

Milling at the proposed rate of 5,000 T.P.D. or 1.5 million tons per year, after selective mining and beneficiation, would require the following mining schedule:

ORE MINING	Per Year	Tonnage Per Day (5 day/wk.)	Per Shift (2/day)
Mill Feed	1,500,000	6,000	—
Beneficiation Rejects	750,000	3,000	—
Selected Ore-Run of Pit	2,250,000	9,000	4,500

There is an estimated 43.9 million tons of waste rock to be removed from the "C-D" pit, outside the fibre zones, in order to provide for safe wall slopes, safety berms and haul roads (average wall slope 45°). To this must be added the 5.8 million tons of waste to be selectively mined from within the zones and the 1.5 million tons of ore which it is estimated will be lost to the dump — a total of 51.2 million tons of waste removal in order to recover 32.7 million tons of pit ore — an overall ratio of 1.57:1. The width and length of the fibre zones will permit the ratio to be held down to 1:1 during the first 5 years of operation, then necessarily increased to 3:1 for the next 5 years, followed by 5 years of 0.71:1 ratio, as scheduled below:

Waste Mining	Tons per Year (50 Weeks)	Tons per Week (5 days)	Tons per Day	Working Shovels	Shifts per Day
First 5 years	2,250,000	45,000	9,000	1	2
Second 5 years	6,750,000	135,000	27,000	2	3
Third 5 years	1,600,000	32,000	6,400	1	2

The estimate of pit equipment and operating cost provides for handling 18,000 tons per day of combined ore and waste rock during the first five years, 36,000 for the next five years and 15,400 tons per day during the last five years of operation.

The estimate of preproduction expense contemplates pumping out Roberge Lake, then stripping one-half the length of the "C-D" fibre zones by means of self-loading scrapers, followed by hydraulic sweeping of the bed-rock.

The same scrapers would continue stripping the remainder of the pit area for 5 years after the beginning of production.

MILLING CONSIDERATIONS

A plant site has been tentatively selected (Exhibit No. 9) between the "B" and "C-D" zones and south of the "A" zone. This area has not been examined or tested in detail but the topography indicates bed-rock proximity, good drainage and accessibility, without unusual construction expense.

The plant, having an overall capacity to treat 2,250,000 tons per 250 day year, or 9,000 tons per day of run-of-pit ore, would consist of 4 units separated by surge piles, as follows:

	Year	Duty Tons Days	Hrs.-Day	T.P.H.	Design T.P.H.
(1) Primary Crushing	2,250,000	250	16	563	740
Secondary Crushing	1,125,000	250	16	282	340
and Conveying to Wet Storage Pile	2,250,000	250	16	563	740
(2) Screening and Drying to Dry-Rock Storage	2,250,000	300	24	313	420
(3) Beneficiation Screens	2,250,000	300	24	313	420
Tertiary Crushing	750,000	300	24	105	140
Rejects to Tailings	750,000	300	24	105	140
Concentrates to Mill Storage	1,500,000	300	24	208	280
(4) Mill Proper	1,500,000	300	24	208	228

The mill proper would consist of 4 rock lines with a capacity of 57 T.P.H. each and other normal facilities for cleaning, grading and pressure-packing of fibres. It would include more than normal equipment for dedusting long fibre and magnetic separation of short fibre, but would not provide for the refining and packing of Shorts (below Grade 7D) and Floats. These grades, Shorts and Floats, would not be competitive due to color and freight.

Consideration should also be given to a simplified mill flow-sheet for bulk production of Grade 5R, without Group 4, particularly if the final strength tests on Group 4 rate much below 100. If so, the exacting specifications for Group 4 for asbestos-cement use would be avoided, without sacrifice of yield or revenue.

TRANSPORTATION

The present drill-indicated reserves, the probability of prolonging the 15 year indicated operating life and the contemplated annual shipments justify extension of the railroad from Chibougamau to the mine. In such case, all products would be loaded on rail cars from a single fibre-warehouse adjacent to the mill. Cost of warehousiing and car-loading is included in the estimated operating costs under "Shipping". Freight equalization is proviided for in calculating the net sales value of the products.

The rail line would also facilitate delivery of operating supplies to the mine and permit consideration of a diesel-car service from Chibougamau for personnel. If constructed early enough, the rail line would reduce the landed cost of construction materials and plant equipment.

C.N.R. officials have advised the writer that the C.N.R. will build a branch line from Chibougamau to the plant provided that the Company guarantees 10 years' shipments of 50,000 tons per year. The Company would be obliged to pay $6.00 per ton to the railroad for any deficit in shipments under 50,000 tons per year but could recoup such penalty by surplus shipments over 50,000 tons per year in any or all of the ensuing 5 years.

For the entry road, it is assumed that the government will defray one-half the estimated $350,000 construction cost. With both provincial and federal aid, the Company may only be required to pay one-third.

ESTIMATED CAPITAL COST

The estimate covering all capital expenditures (Exhibit No. 27) is based on approximate building sizes and a tentative plant layout. The figures are believed to be accurate within the range of plus zero, minus 10%, assuming normal construction efficiency and experience in asbestos-plant design, with no allowance for escallation or inflation. A 10% contingency allowance is provided on all construction items, $150,000 for administration and other Company overhead and 10% for design engineering, construction supervision, insurance, travel and miscellaneous. The estimated total cost is $14,291,000 excluding working capital, interest charges and cost of any surface rights or rights-of-way which may be required.

CAPITAL COST SUMMARY

	Buildings	Equipment	Roads	Power	Operating Supplies	Other
Preproduction Expense	—	—	—	—	—	$911,000
General Expense	$649,000	$1,116,000	$210,000	$645,000	$350,000	45,000
Pit Equipment	5,000	2,438,000	—	—	—	—
Primary and Sec. Crush	144,000	730,000	—	—	—	—
Wet Storage	99,000	128,000	—	—	—	—
Drying	64,000	759,000	—	—	—	—
Dry Storage	253,000	179,000	—	—	—	—
Beneficiate	—	211,000	—	—	—	—
Mill	1,147,000	3,319,000	—	—	—	—
Fibre Storage	242,000	78,000	—	—	—	—
Service Building	272,000	297,000	—	—	—	—
Sub-Totals	$ 2,875,000	$ 9,255,000	$ 210,000	$ 645,000	$ 350,000	$ 956,000
Grand Total	$14,291,000					

PREPRODUCTION WORK

INITIAL ITEMS

Roberge Lake, which covers most of the "C-D" fibre zones, is underlain with an average of 25 feet (as indicated by 13 drill holes) of unconsolidated material, reported to be sand and gravel. Early preproduction work would be:

(1) Bulk mill testing of "C-D" ore-body.

(2) Depth and soil analysis under Roberge Lake.

(3) Aerial topographic survey of property and southwest to Lake Chibougamau.

(4) Soil testing of proposed plant site.

(5) Entry road, railroad and transmission line surveys, followed by their construction.

(6) Perimeter ditching around ultimate pit limits, leading to permanent catch basins.

(7) Land clearing within pit perimeter ditch and plant site.

LAKE DRAINAGE

There is an estimated 1 billion gallons of water in Roberge Lake, to a maximum depth of 65 feet (near Section 9400, west end), a measured July outflow of 600-700 g.p.m. and a drainage area of 2.5 square miles. It will require 90 days to pump out with a 12″ centrifugal pump driven by two 250 H.P. diesel engines, barge mounted and delivering at the lake outlet through an extendible 14″ steel pipe line having a final length of 1,000 feet. This pump would later be installed at a sump in the perimeter ditch around the pit as a standby unit in case of electric power failure, spring run-off and flash floods. Dewatering cost, exclusive of $50,000 worth of equipment, is estimated at $35,000.

STRIPPING

It is assumed that the alluvial material under Roberge Lake will support the weight of wheel tractor scrapers, after dewatering, so that scrapers followed by hydraulic washing of the surface of fibre-zones can be applied to a restricted area prior to production. Otherwise, the entire stripping operation, estimated at 4 million cubic yards should be performed hydraulically before rock mining begins.

After dewatering, 7 months will be required to strip an estimated 1 million cubic yards of overburden (500′ wide x 2,000′ long x 27′ deep), being the western half of the "C-D" pit, over the "C" fibre zone where the fibre content is highest. For this schedule 2 - 18 yd. Scrapers, 2 Tractors, 1 Dozer and 1 Pusher (no spare units) would be operated at 70% availability, 3 shifts per day, 6 days per week, moving 6,000 bank yds. per day a distance of 2,000 feet up 3% grade. The cost of this equipment is included with the pit equipment as it would continue to be used, one shift per day, to remove the remaining 3 million tons of overburden on the "C-D" pit during the first 5 years of operation. This phase of stripping is estimated to cost 17¢ per bank yard, excluding depreciation and purchase cost of the equipment.

After scraping the initial area over the ore-zone, it would be washed by 2″ monitor, supplied from the plant pump station at West Lake 5,000 feet away, using one of the 250 H.P. diesels from the dewatering pump, if electric power were not yet available, through a temporary 6″ pipe line to the nozzle. The cost of hydraulic sweeping this area is estimated at $10,000. This figure includes the new equipment required for this purpose only, as it is unlikely that it could be used again in the "C-D" pit, once the mine is in operation, due to the topography.

It is assumed that the remaining 1 million square feet of the "C-D" fibre zones will be cleaned by small back-hoe, trucks and hand shovelling at a cost of $25,000 or $1.00 per cubic yard.

Stripping on each side of the fibre-zones to the ultimate pit limits would be confined to clearing, scraping and dozing, as thorough cleaning of the rock surface over the waste-rock areas is not considered necessary.

STRIPPING AND DRAINAGE
COST SUMMARY — "C-D" ZONE

	Equipment	Operation
(1) Dewater Roberge Lake — 1 billion gallons	$ 50,000	$ 35,000
(2) Clear land, build strip roads	—	5,000
(3) Perimeter ditches and sumps (Back-hoe and dump trucks)	60,000	10,000
(4) Initial strip over ore — 1 million cu. yds.	200,000	170,000
(5) Hydraulic wash ore surface — 1 million sq. ft.	—	10,000
(6) Strip and clean balance of ore — 1 million cu. yds.	—	195,000
(7) Strip balance of pit — 2 million cu. yds.	—	340,000
Contingencies — 10%	31,000	77,000
Totals	$ 341,000	$ 842,000
Charge to Preproduction	—	$ 230,000
Stripping	—	612,000
Pit Equipment	$ 341,000	
Operating Stripping Cost	$612,000 or 2.8¢ per ton milled	

OPERATING COST ESTIMATE
SUMMARY

The following table of estimated operating cost is comparable with current costs in Thetford Mines for similar operations. The present scale of Thetford wages and salaries has been used, rather than Chibougamau, which is somewhat lower.

	First 5 Years	Second 5 Years	Third 5 Years
Waste: Ore Ratio	1	3	0.71
Tons Ore Mined per Ton Milled	1.5	1.5	1.5
Total Tons Mined per Ton Milled	3.0	6.0	2.6

ESTIMATED OPERATING COST PER TON MILLED

Strip	0.03	0.03	0.03
Mine Ore (1.5 tons)	0.30	0.33	0.38
Mine Waste (1.5 tons)	0.30	0.99	0.18
Crush (1.5 tons)	0.05	0.05	0.05
Dry (1 ton, by-pass ½ ton)	0.19	0.19	0.19
Beneficiate and Crush	0.04	0.04	0.04
Mill (1 ton)	0.74	0.74	0.74
Bag (1 bag)	0.40	0.40	0.40
Ship (1 bag)	0.05	0.05	0.05
Mine Overhead	0.24	0.24	0.24
Administration	0.10	0.10	0.10
Sales	0.10	0.10	0.10
Totals	$2.54	$3.26	$2.50

OPERATING COST ESTIMATE
BREAK-DOWN
(First 5 Years)

Estimated Cost per Ton Milled

	Wages and Salaries	Operating Supplies	Electric Power	Repair Labor	Repair Mat'ls.	Other	Total
Strip	$.013	$.006	—	$.003	$.005	—	$.027
Mine Ore	.113	.106	.007	.037	.037	—	.300
Mine Waste	.113	.106	.007	.037	.037	—	.300
Crush, Convey	.017	.005	.019	.003	.010	—	.054
Stock, Dry, Convey	.027	.110	.025	.003	.020	—	.185
Stock, Screen, Crush	.013	.002	.011	.003	.005	—	.034
Mill	.303	.050	.101	.137	.150	—	.741
Bag	.087	.300	.007	.007	.002	—	.403
Ship	.023	.025	—	—	—	—	.048
Mine Overhead	.150	.016	—	.010	.007	.057	.240
Administration	—	—	—	—	—	.100	.100
Sales	—	—	—	—	—	.100	.100
Totals	$.859	$.726	$.177	$.240	$.273	$.257	$2.532

NOTES:

Wages and salaries include 20% for fringe benefits and overuse.
Supplies and materials include 10% contingency allowance.
Electric power costs are based on a high load factor — 70%.
For details on Mining Cost refer to Exhibit No. 30.
For details on Mine Overhead refer to Exhibit No. 31.

MAN-POWER
SUMMARY

	On Payroll Salaried	On Payroll Hourly	Weekly Basic	Total Company Cost(1)
Mine Office	22	4	$3,736	$4,500
Mine	9	50	5,997	7,200
Mill	10	94	11,754	14,100
(Mill Swing-Shift)	—	24	—	—
Services	8	48	5,997	7,200
Totals	49	220	$27,484	$33,000
Grand Total	—269—		$33,000 (week)	

(1) Includes 20% allowance for fringe benefits and overuse.
For details refer to Exhibit No. 28.

ELECTRIC POWER

REQUIREMENTS

Total Connected Load — 9,400 H.P.	7,000 K.W.
Demand Factor — 70%	
Maximum Demand — 20 minutes	4,900 K.W.
Load Factor — 70%	
Average Demand	3,430 K.W.
K.W. — Hrs. per month — 3,430 x 730	2,500,000 K.W. Hrs.
Transmission and Transformer Losses	10%
Total Monthly Consumption	2,750,000 K.W. Hrs.

The Hydro-Quebec industrial rate beginning in 1965 for the Chibougamau area will be 8.9 mills per kilowatt-hour, with 70% load factor.

Annual Cost of Power — 2,750,000 x .0089 x 12 — $293,700

DISTRIBUTION

	Installed H.P.	Annual Power Cost
Pit — Shovels, Pumps	700	$ 22,000
Crush and Convey	1,000	31,000
Dry and Convey	1,300	41,000
Tertiary Crush and Convey	500	16,000
Mill and Tailings	5,500	172,000
Shops	200	6,000
Miscellaneous	200	5,700
Totals	9,400 H.P.	$ 293,700

TRANSMISSION LINE

Hydro-Quebec engineers will advise on length, location and cost of line. Probable maximum cost would be a new 25 mile — 44 or 60 kv. line from Obalski sub-station at $15,000 per mile or a total of $375,000. The standard arrangement is for the Company to deposit the estimated cost of the line with Hydro-Quebec who build and maintain it, returning the fund deposited to the Company at the rate of 10% of the annual power bill. For the purposes of this report, it will be considered that this arrangement has the effect of reducing the cost of power by 10% to $264,300 per year.

PROFITABILITY

FUNDS REQUIRED

Preproduction Cost — Past and Future	$ 911,000
Cost of Plant	13,380,000
Interest on $5,000,000 loan at 7% for 2 years and $5,000,000 for 1 year during construction period	1,050,000
Total — including Exploration	$15,341,000

SOURCE OF FUNDS

Equity Capital (by underwriting agreements to date)	$ 1,200,000
Assumed Additional Equity Capital	4,800,000
Total Equity Capital	$ 6,000,000
Long Term Loans at 7%	10,000,000
Total Capital ($14,800,000 new)	$16,000,000

WORKING CAPITAL

It is estimated that $2,500,000 working capital will be required to defray operating costs and loan interest during plant tune-up and sales build-up. It is assumed that this amount can be financed as bank credit on fibre in inventory at 6%.

REPLACEMENTS AND IMPROVEMENTS

After the first year of operation, it is estimated that $150,000 per year must be spent on replacement of worn-out and obsolete equipment and that this cost will increase to $300,000 in the tenth year. No such replacements and improvements would be made in the last five years of operation. In the estimate of profitability (Exhibit No. 32) this is shown as a special charge written off against each year's operation, separate from depreciation which is a "non-cash" item.

CASH FLOW

The estimated rate of cash flow (Exhibit No. 32) will retire the long term and bank loans with interest in 5 years of operation, then, in the remaining 10 years of mining the "C-D" pit, will generate $22,338,000 for return of $6,000,000 of equity capital with interest.

Respectfully submitted,

"G. H. GIBBS," B.A.Sc., P.Eng.

Toronto, Ontario,
September 10, 1964.

REFERENCES

(1) Rinfret Area, Report 81, Quebec Department of Mines by W. W. Longley, 1958.

(2) Report on McAdam Mining Corporation Limited by Dr. R. Bruce Graham, February 7, 1961.

(3) Memoir 185, G.S.C., Chibougamau Lake Map Area by J. B. Mawdsley and G. W. H. Norman, 1935.

(4) Report on 15 Claim Group, McAdam Mining Corporation.

(5) The Geology of Canadian Industrial Mineral Deposits, page 29.

CERTIFICATION

I, GORDON HOLMES GIBBS, of the City of Toronto, of the Province of Ontario, Canada, hereby certify:

(1) THAT I am a graduate in Mining Engineering of the University of Toronto (1931) and have practised in this profession for more than twenty years.

(2) THAT I am a member of the Association of Professional Engineers of Ontario.

(3) THAT I have no personal interest, nor do I expect to receive any interest, directly or indirectly, in the property involved in this report, or in the securities of any Company which may acquire the property.

(4) THAT this report is based on inspection of the property, examination of drill core, witnessing of core milling and all other data; and on twelve years experience as manager of a 2,000 ton per day asbestos mine in Canada.

"G. H. GIBBS," B.A.Sc., P.Eng.

Dated at Toronto, Canada,
this 10th day of September, 1964.

SUPPLEMENTARY REPORT
McADAM MINING CORPORATION LIMITED
ASBESTOS MARKETS

PRESENT STATUS

In a report dated September, 1964, submitted on September 10, the writer estimated that 76,000 tons per year of saleable chrysotile asbestos fibre could be profitably produced during a 15-year period from 1967 through 1981. The annual net sales value of $7,590,000 gave the project full credit at current Canadian list prices, less freight equalization to Danville, Quebec (page 21). No other discounting was applied because it was (and is) the writer's opinion that "full list prices or greater will be received before 1968" (page 21), in spite of the recognition that current discounts were averaging 10% off list prices.

RECENT DEVELOPMENTS

A few days after submitting the report, the major asbestos producers in Quebec announced new prices to become effective January 1, 1965. These new prices are 6 to 16% higher than those on which the profitability study was based. Perhaps as a result of this announcement of higher future prices, some of the Canadian mines cannot meet the demand and are reported to be sold out for 1965. Mine inventories are close to the normal operating minimum.

After 5 or 6 years of highly competitive selling, involving over-grading and heavy sales discounts, due to over-production and consequent "distressed" dumping, we now have this positive evidence that the ever-increasing world consumption of asbestos is coming into balance with production.

The writer is advised by authorities in the business that demand will exceed supply after 1967.

FUTURE DEMAND

Forecasting the demand for any mineral, copper, gold or asbestos, should, perhaps, not involve personal opinions but should rather be based on reasonable projection of past trends. The world production (and sales) of asbestos, according to Minerals Yearbook of the U.S. Bureau of Mines has been, in thousands of short tons:

1949-53 (Average)	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963
1445	1670	1950	1980	2070	2105	2260	2440	2770	3055	3200

These figures include an estimate of Russian production (only a small part of which has been sold outside of Russia) as follows:

In Thousands of short tons:

1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963
250	375	450	500	500	600	600	660	880	1100	1200

Total world production has doubled in the last 10 years. Free world production has increased over 50% in the last 10 years, at an average rate of about 5% per year. On this basis, some 200,000 tons of new production will be required each year — the equivalent of three McAdam projects per year.

FUTURE PRODUCTION

At the present time, there are several potential Canadian deposits which may come into production within the next few years — Canadian Johns-Manville's Reeves Township property in Ontario, Asbestos Corporation's in Ungava, Cassiar's Clinton Creek property, etc. These will be offset to some extent by old mines nearing exhaustion. Russia continues as a threat to the European market, with large reserves, increasing production but with an increasing internal pressure for a higher standard of living and more domestic consumption of asbestos.

CONCLUSION

Under today's conditions marketing of 76,000 tons per year of new asbestos production, without a "captive" market, would be a difficult and costly selling effort. Under conditions which are indicated for the proposed production period, there is no foreseeable problem in realizing the estimated sales-revenue.

Respectfully submitted,

"G. H. GIBBS," B.A.Sc., P.Eng.

Toronto, Canada,
November 2, 1964.

CERTIFICATION

I, GORDON HOLMES GIBBS, of the City of Toronto, of the Province of Ontario, Canada, hereby certify:

(1) THAT I am a graduate in Mining Engineering of the University of Toronto (1931) and have practised in this profession for more than twenty years.

(2) THAT I am a member of the Association of Professional Engineers.

(3) THAT I have no personal interest, nor do I expect to receive any interest, directly or indirectly, in the property involved in this report, or in the securities of any Company which may acquire the property.

(4) THAT the report is based on inspection of the property, examination of drill cores, witnessing of core milling and all other data; and on twelve years experience as manager of a 2,000 ton per day asbestos mine in Canada.

"G. H. GIBBS," B.A.Sc., P.Eng.

Dated at Toronto, Canada,
this 2nd day of November, 1964.